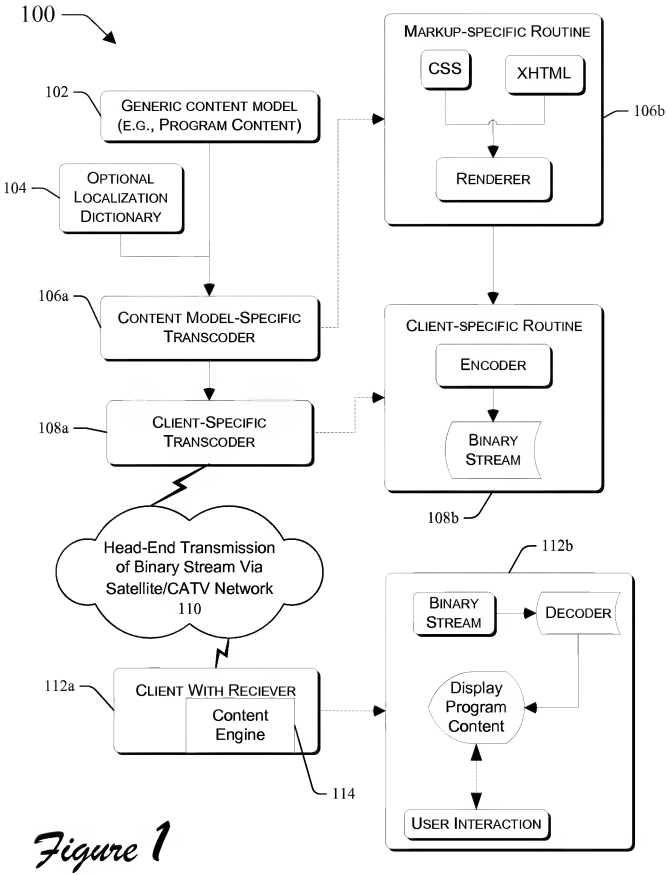
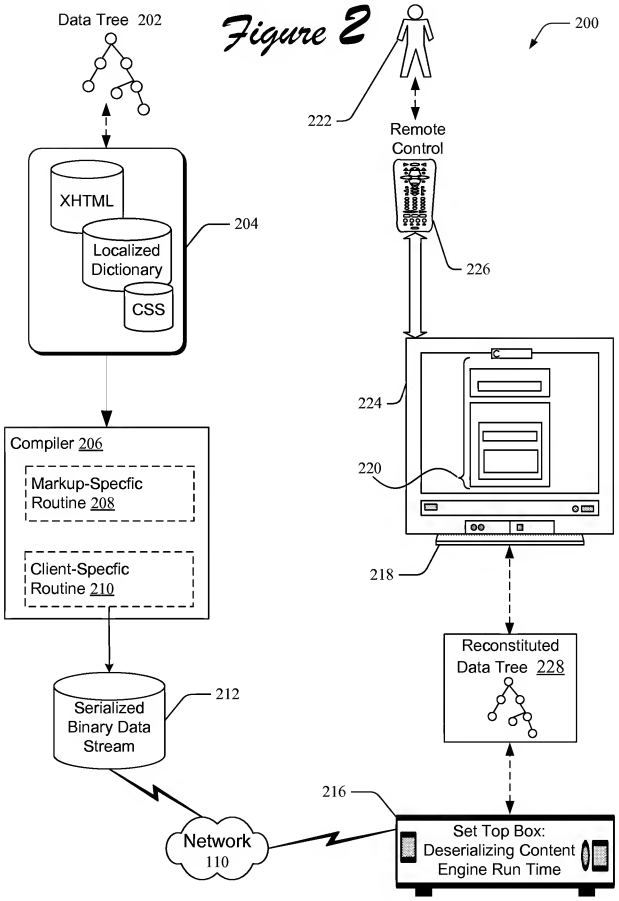

100
102
GENERIC CONTENT MODEL (E.G., PROGRAM CONTENT)
104
OPTIONAL LOCALIZATION DICTIONARY
106a
CONTENT MODEL-SPECIFIC TRANSCODER
108a
CLIENT-SPECIFIC TRANSCODER
Head-End Transmission of Binary Stream Via Satellite/CATV Network
110
112a
CLIENT WITH RECIEVER
Content Engine
114
MARKUP-SPECIFIC ROUTINE
CSS
XHTML
RENDERER
106b
CLIENT-SPECIFIC ROUTINE
ENCODER
BINARY STREAM
108b
112b
BINARY STREAM
DECODER
Display Program Content
USER INTERACTION

Figure 1

Figure 2


Data Tree 202
200
222
Remote Control
XHTML
Localized Dictionary
CSS
204
226
224
220
218
Compiler 206
Markup-Specfic Routine 208
Client-Specfic Routine 210
Reconstituted Data Tree 228
Serialized Binary Data Stream
212
216
Network 110
Set Top Box: Deserializing Content Engine Run Time

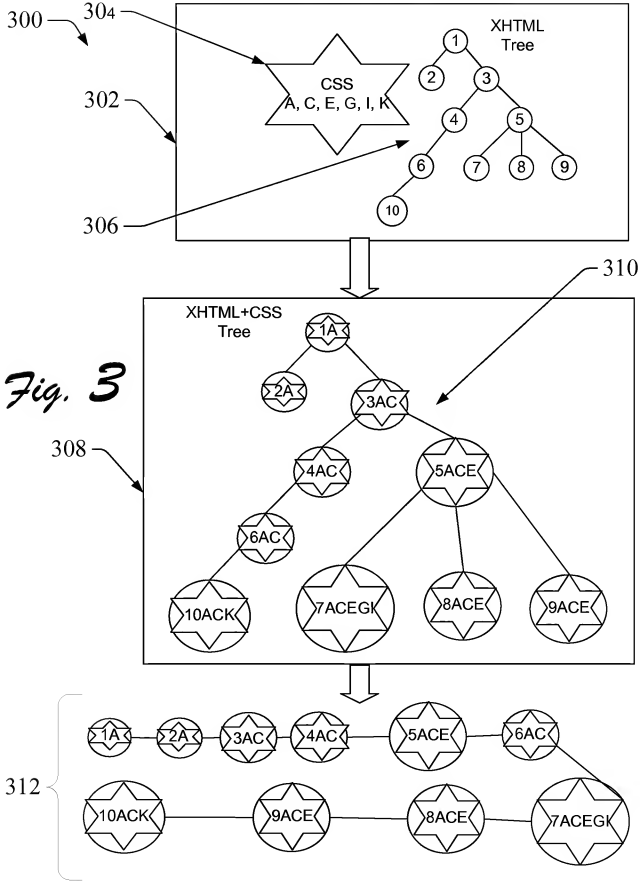

300
304
302
306
CSS
A, C, E, G, I, K
XHTML
Tree
1
2
3
4
5
6
7
8
9
10
310
XHTML+CSS
Tree
1A
2A
3AC
4AC
5ACE
6AC
10ACK
7ACEGI
8ACE
9ACE
308
312
1A
2A
3AC
4AC
5ACE
6AC
10ACK
9ACE
8ACE
7ACEGI

Fig. 3

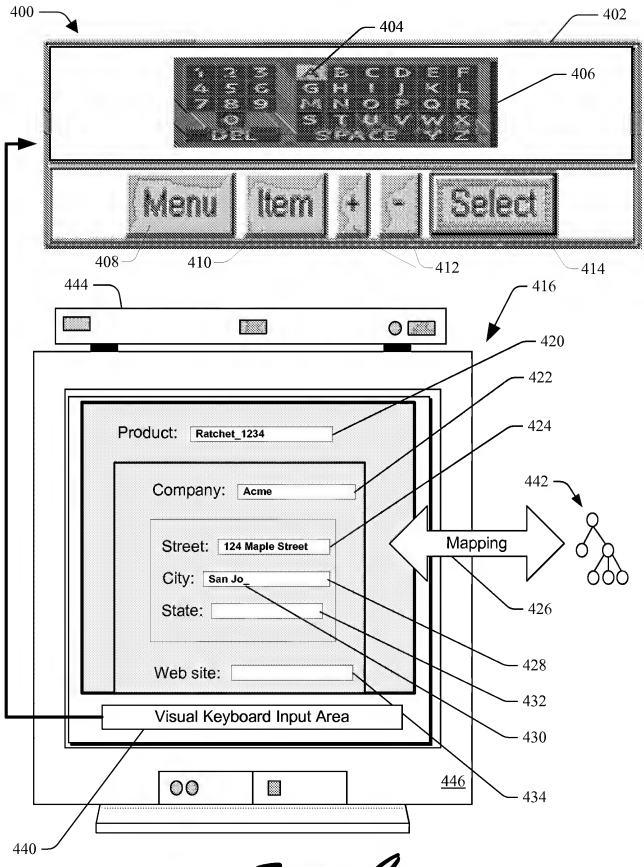

400
402
404
406
Menu
Item
+
-
Select
408
410
412
414
444
416
420
422
Product:
Ratchet_1234
424
Company:
Acme
442
Street:
124 Maple Street
Mapping
City:
San Jo
426
State:
428
Web site:
432
Visual Keyboard Input Area
430
446
434
440

Figure 4

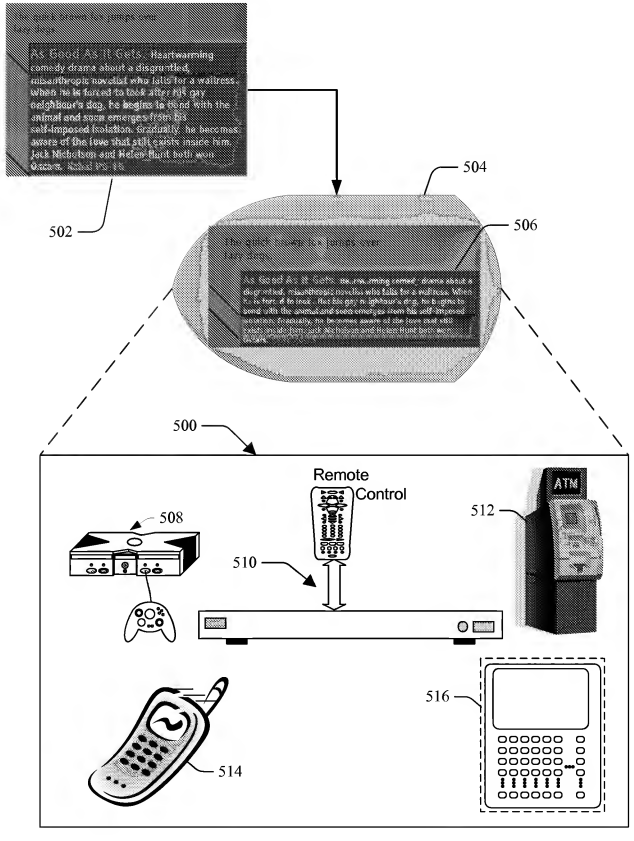

As Good As It Gets. Heartwarming comedy drama about a disgruntled, misanthropic novelist who falls for a waitress, when he is forced to look after his gay neighbour's dog, he begins to bond with the animal and soon emerges from his self-imposed isolation. Gradually, he becomes aware of the love that exists inside him... Jack Nicholson and Helen Hunt both won Oscars. Rated PG-13.
502
504
506
500
Remote Control
508
510
512
ATM
514
516

Figure 5

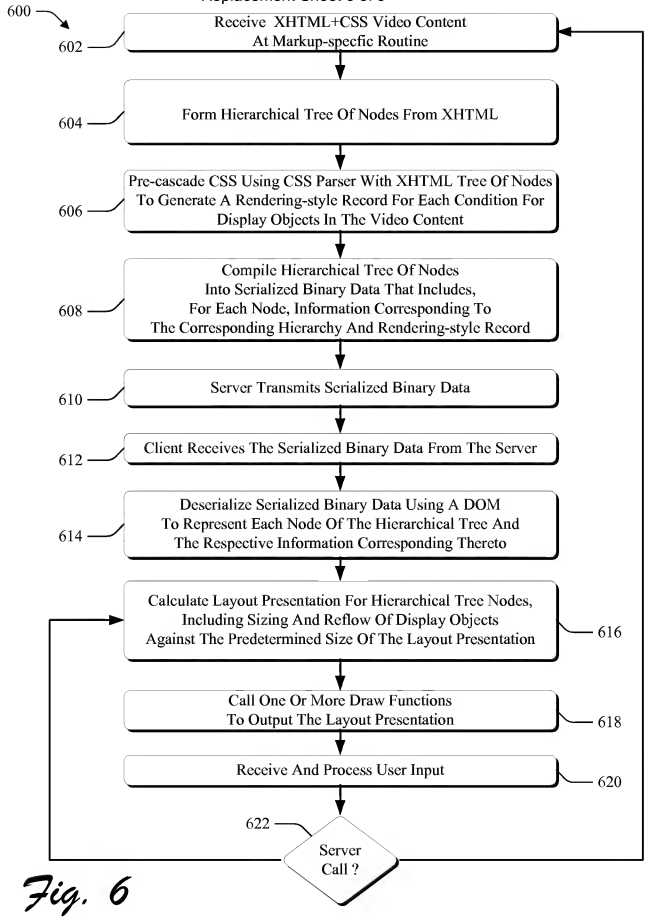

600
602
Receive XHTML+CSS Video Content At Markup-specfic Routine
604
Form Hierarchical Tree Of Nodes From XHTML
606
Pre-cascade CSS Using CSS Parser With XHTML Tree Of Nodes To Generate A Rendering-style Record For Each Condition For Display Objects In The Video Content
608
Compile Hierarchical Tree Of Nodes Into Serialized Binary Data That Includes, For Each Node, Information Corresponding To The Corresponding Hierarchy And Rendering-style Record
610
Server Transmits Serialized Binary Data
612
Client Receives The Serialized Binary Data From The Server
614
Deserialize Serialized Binary Data Using A DOM To Represent Each Node Of The Hierarchical Tree And The Respective Information Corresponding Thereto
616
Calculate Layout Presentation For Hierarchical Tree Nodes, Including Sizing And Reflow Of Display Objects Against The Predetermined Size Of The Layout Presentation
618
Call One Or More Draw Functions To Output The Layout Presentation
620
Receive And Process User Input
622
Server Call ?

Fig. 6

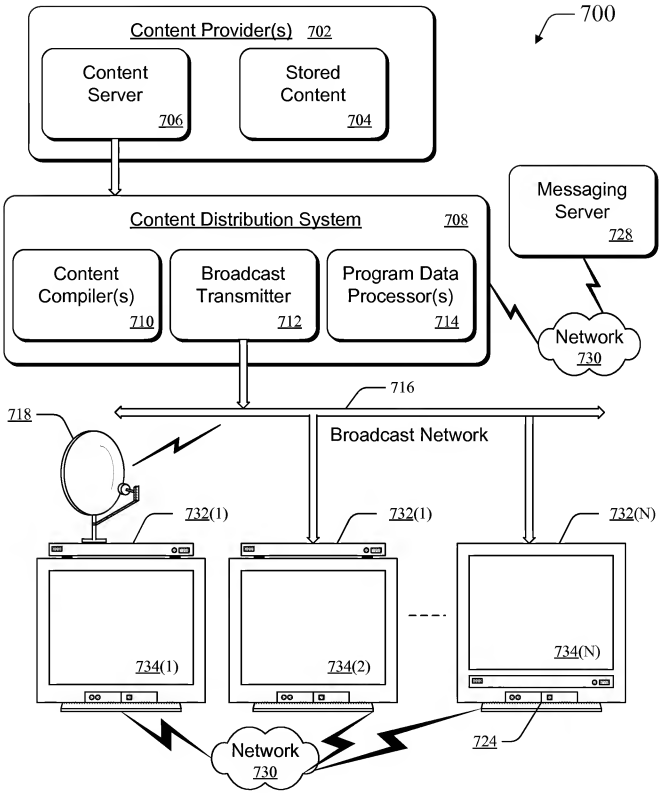

700
Content Provider(s) 702
Content Server 706
Stored Content 704
Content Distribution System 708
Content Compiler(s) 710
Broadcast Transmitter 712
Program Data Processor(s) 714
Messaging Server 728
Network 730
716
718
Broadcast Network
732(1)
732(1)
732(N)
734(1)
734(2)
734(N)
Network 730
724

Figure 7

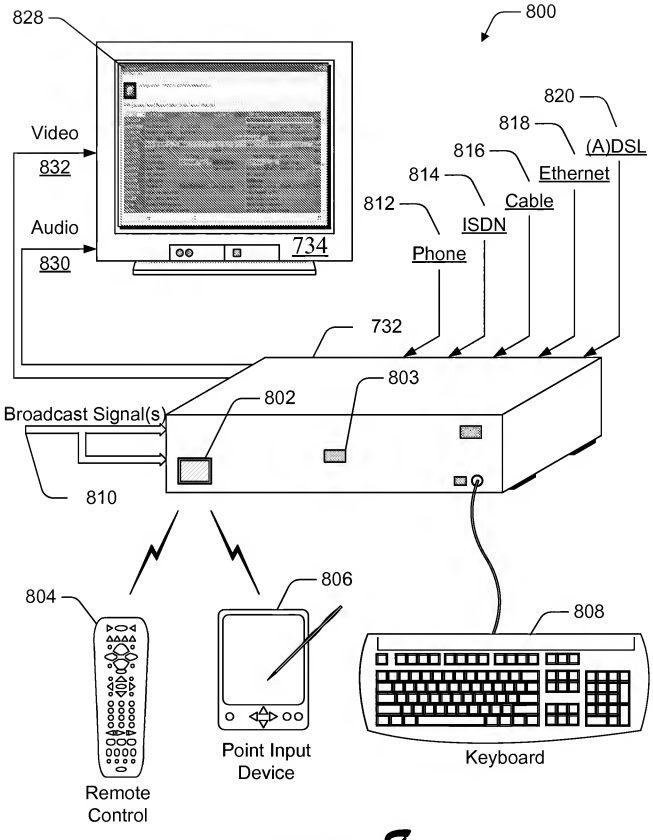

828
800
820
818
(A)DSL
816
Ethernet
814
Cable
812
ISDN
Phone
Video
832
Audio
830
734
732
803
802
Broadcast Signal(s)
810
804
806
808
Remote Control
Point Input Device
Keyboard

Figure 8

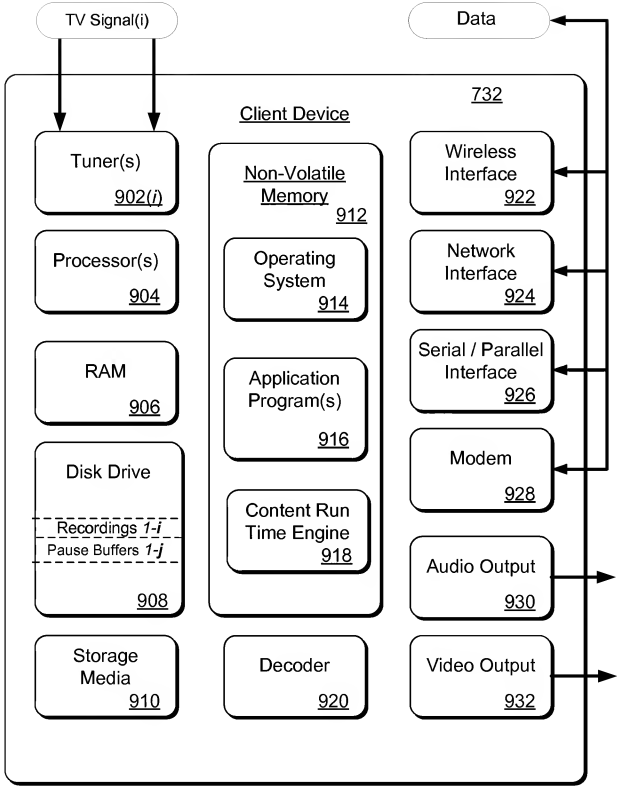

TV Signal(i)
Data
732
Client Device
Tuner(s)
902(i)
Processor(s)
904
RAM
906
Disk Drive
Recordings 1-i
Pause Buffers 1-j
908
Storage Media
910
Non-Volatile Memory
912
Operating System
914
Application Program(s)
916
Content Run Time Engine
918
Decoder
920
Wireless Interface
922
Network Interface
924
Serial / Parallel Interface
926
Modem
928
Audio Output
930
Video Output
932

Figure 9